

# ***DMIE Procedure***

## **Select Parts**

### **1. Title**

Assessment and Selection of Electronic Parts for Flight Projects

### **2. Process**

Provide Electronic Parts Engineering

### **3. Steps**

Actor	Step	Action
Designer	1	Identify electronic function (part) required for design. Submit parts list to Office 507 for review and assessment. Provide performance requirements for parts and subsystems.
Parts Interface Engineer (PIE)/ Parts Specialist	2	Determine environmental parts requirements and performance requirements including allowable degradation and error rates. Assess parts lists for potential radiation, reliability assurance, cost and availability problems. Recommend evaluations, procurement controls, screening tests, alternative part types, and preferred sources.
Cognizant Engineer/ Designer	3	Accept and/or modify parts list based on Office 507 assessment. If designer selects new parts, then parts list assessment is repeated for newly selected parts. If performance requirements are modified to accommodate environmental impact, notify the PIE of changes.
PIE	4	Using final parts list, develop parts acquisition proposal by determining part cost, delivery schedule, and residual risks, based on expected environmental effects during mission life. If necessary, develop Non-Standard Parts Approval Requests (NSPARs) governing parts approval flow for high risk or non-standard

		parts. Define necessary pre- and post-acquisition tests, such as construction analysis, destructive physical analysis, radiation evaluation and characterization, advanced or emerging technology evaluation and radiation lot acceptance testing. Provide estimated cost and schedule for recommended tests.
Cognizant Engineer/ Designer	5	Approve parts acquisition proposal including accompanying pre- and post-acquisition tests and evaluations. Generate waivers if necessary. If not acceptable, return to Step 1.
PIE	6	If accepted recommendation includes performance of pre-procurement evaluations then prepare test/evaluation plan including cost and schedule.
Cognizant Engineer	7	Approve proposed test/evaluation plan.
PIE	8	Implement approved test/evaluation plan. Submit results, changes in risk assessment, and recommendations. Capture results in the Electronic Parts Information Network System (EPINS).
Cognizant Engineer	9	Review and approve results and recommendations.
PIE	10	Initiate Acquisition process for approved line item(s).

## **4. Applicability**

This procedure applies to the selection of electronic parts for all flight hardware.

## **5. Tips** (optional)

Sources of additional information on parts selection, including test data, guidelines, and catalogs, are available from:

- Parts Website at <http://parts.jpl.nasa.gov>
- Radiation Databank RADATA at <http://parts.jpl.nasa.gov/jprada.htm>
- GSFC EEE Parts Information Management System (EPIMS) at <http://epims.gsfc.nasa.gov/>

## **6. Source**

Provide Electronic Parts Engineering

## **7. Rationale**

Electronic parts selection is an integration of the mission parameters, project budget and schedule limits, and the performance requirements needed by the design. The procedure provides a systematic approach to evaluate and select electronic parts program for the project or task. Assistance will be provided for identifying and mitigating cost, schedule and performance risks. It is prudent and cost-effective to select parts based on all factors, not just performance characteristics under laboratory conditions.

## **8. Consequences**

*Natural consequences:*

- Not meeting mission objectives.
- Not achieving low life cycle costs.
- Not achieving the desired mission risk level
- System and part failures
- Last minute re-work and part substitutions

## **9. Trigger/Result** (optional)

TRIGGER: Project identification of electronic parts needs.

RESULT: Supply evaluation of electronic parts and whether parts meet project requirements (cost, schedule, performance, life) along with risk assessment.

## **10. Related Procedures** (optional)

Parts Program Management  
Develop Approach  
Parts Acquisition  
Post-Delivery Support  
Parts Knowledge Management  
Parts Engineering Facility Management

## **11. Frequently Asked Questions** (optional)

[TBD]

## **12. Change Description**

This is a new procedure.

## **13. Notification** (optional)

[ ☒ ] Visible Draft or

[ ☐ ] Invisible Draft

### **Reviewers:**

ISO9001	
Arnett, J.	5050
Barela, P.	5060
Brace, R.	5150
Barath, F.	7000
Brejcha, A.	5000
Bunker, R.	3400
Casani, J.	5000
Cherniack, E.	5100
Clawson, J.	5050
Cooper, L.	3110
Cunningham, G.E.	4900
Dickerson, M.	3440
Frerking, M.	7932
Frandsen, A.	3200
Fraschetti, G.	3870
Garrison, P.	3501
Gavin, T.	1400
Gavit, S.	7620
Geer, D	3440
Graf, J.	7830
Greanias, G.	5150
Harris, W.	3800
Hoffman, A.	5050
Hovland, L	3870
Hunter, J.	7020
Johnson, D	3440
Jones, S.	5030
Kemski, R	5150

Kaki, S.	7700
Klein, J. Dr.	3440
Koch, J.	5050
Komarek, T.	3360
Kyriacou, C.	3360
Laeser, R.	1000
Langmaier, J.	3400
Lau, G.	3110
Lehman, D	7610
Livermore, T.	7240
Livesay, L.	7610
Marr, J	7240
McNamee, J.	4300
Menke, R.	5150
Miller, J.	5060
Muirhead, B	4100
Norris, D.	3870
Pace, G.	4500
Perret, J.	3360
Reh, K.	3440
Rose, J.	5170
Schlue, J.	5150
Simmons, L.	7500
Staehle, R.	7420
Stevens, C.	3870
Suggs, E.	4500
Suitor, J.	5010
Swenson, D.	7000
Woerner, D.	7410
Wright, L.W.	5040
Yamarone, C.	7700